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CONTENTS

Contributions of the War Effort to Medicine 3
Cornelius P. Rhoads

Modern Concepts of War Neuroses 7
Brigadier General William C. Menninger, M.C.

What Can the Practitioner Do in Treating the Neuroses? 23
Thomas A. C. Rennie

Evaluation of Early Postoperative Activity 38
John H. Powers

Library Notes:

Recent Accessions to the Library 51

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BULLETIN OF
THE NEW YORK ACADEMY
OF MEDICINE

JANUARY 1946

CONTRIBUTIONS OF THE WAR EFFORT TO MEDICINE*

CORNELIUS P. RHOADS

Acting President, The New York Academy of Medicine

THE subject of this 18th Graduate Fortnight of The New York Academy of Medicine is the Contribution of the War Effort to Medicine. It is apparent from the program that this contribution is a most inclusive one. Those who attend the complete series of meetings very obviously will hear presented certain final results of an effort in scientific investigation without precedent in the history of this or of any other country.

Contribution is a meaningful term. It implies that through the war our scientific medical knowledge has advanced to an extent beyond that which could have been expected in a peace time period of similar length. The truth of this implication is self-evident. Any single one of the outstanding developments which will be discussed at the meetings of this Fortnight would have been a most notable accomplishmtnt for a whole decade of research done at the tempo of the 1930's. Each one, furthermore, is capable of direct practical application to therapeutic medicine. These advances are most desirable things. They are important, indeed notable, not only for what each one means directly in the cure

* An address delivered October 8, 1945, at the opening of the Eighteenth Graduate Fortnight of The New York Academy of Medicine.

of disease, but also because of what each one means indirectly in terms of possible developments to be expected in the future.

It is the duty of every physician to apply effectively in the care of his patients those scientific advances which have been proven to be of value. Every physician has an additional responsibility. This is to facilitate in every way in his power the making of further advances. This series of lectures should provide an ideal opportunity to consider not only the outstanding war time triumphs of the scientific method in medicine, but also to consider for future application the way in which these triumphs were brought about.

Let there be no mistake about it. Each one of these great discoveries which is presented here as an accomplished fact represents the end result of almost interminable labor, of unending disappointments and frustrations, of legions of false leads followed and of theories discarded. More than this, however, they represent something which sets apart the contributions of war medical research in contrast to the studies on similar subjects in peace time. This something is the organization and direction of research toward the solution of a specific problem or problems.

Organized work may be called development as opposed to research, if you choose. Whatever it is called, it has given in the past 4 years to medicine and to the public the advances which have been bitterly needed since the dawn of civilization. If these advances are desirable ones, and few would question the desirability, it is pertinent to review briefly here how their production was accelerated during the war. Once the means, or technique, is clearly in mind, we may consider how by the same or a similar technique a similar rate of progress can be continued during the peace.

Perhaps the first point to be established is whether we wish to continue medical advance at the rate now attained. Few individuals would oppose continued productivity unless they felt that the cost was too great in terms of fundamental human values, such as individual liberty, or possibly would interfere with long term advance. Interestingly enough many do maintain both these objections. This fact is well illustrated by the recent discussion which appeared in the columns of the *New York Times*. The basis for this discussion was a report by Dr. Vannevar Bush to the President of the United States, entitled "Science: The Endless Frontier." This report was prepared in com-

pliance with a request from the President for recommendations as to what can be done now in the war of science against disease to organize a program for continuing in the future the work which has been done in medicine and related sciences during the war. In the preparation of the report exceedingly careful consideration was given to the opinions of a very large group of individuals eminently qualified to discuss the matter. An important conclusion was reached. This is that if progress in medicine is to be maintained the government should extend financial support to basic medical research through grants both for research and fellowships. Another conclusion is presented which raises certain very important questions. This second premise is that "the striking advances in medicine during the war have been possible only because we had a large backlog of scientific data accumulated through basic research in many scientific fields in the years before the war."

A third conclusion is a corollary to the second and reads, "Progress in the war against disease results from discoveries in remote and unexpected fields of medicine and the underlying sciences."

These 3 conclusions warrant serious thought. They imply, in essence, that the only way to maintain progress in medicine is to provide support for the accumulation of scientific data through basic research in many fields. This statement is made in the face of the evidence that organized research in certain limited fields during the war resulted in advances more rapid than would have been made without this organization and direction. In short, the advances which are to be presented at this Fortnight, as well as those made during the war in almost every field of science, cannot be continued, it is claimed, by the very means which produced them during the war.

Only one conclusion, then, is possible from the public summary of the best scientific opinion of the country. We must concede that it is impossible to do basic research and at the same time to make striking advances. This is equivalent to saying that research and development are mutually antagonistic, hence, since we cannot have both, it is said, let us provide Federal funds for the support of research and let development look after itself. The experience of the past suggests that under this system development lags, and long periods, often decades, elapse before the fundamental observation is converted through development, into something applicable to the cure of the sick. Thirty years elapsed between the production of pancreatic diabetes and the

availability of insulin.

The public and the practitioner are vitally interested in the maintenance of broad activity in fundamental research in all fields of science. They are equally vitally concerned to see that fundamental discoveries are developed to applicable techniques as quickly as possible.

Let us be sure, then, that the lessons of this war are remembered and converted into action. Let the physician and the public be vocal and demand that the present rate of medical advance be continued. If we cannot have concurrent research and development under the existing facilities, let the facilities be expanded. All power to the explorer, to the contributor of new, unexpected and basic facts through the increase in the general backlog of scientific knowledge: All power to the unsung hand of the developer, whose work, though equally laborious, is less spectacular. Let us be certain that we have the very best basic research possible and let us demand that at the same time development keep pace. If this require planning and initiation and organization, as was the case during the war, let us have these but in such a way as not to interfere with individual freedom and initiative. But withal, let us not lose sight of the fact that development has a place. Both the prospector and the miner are needed to get out the gold. It is the gold of the applicable discovery that is needed by the million occupants of our hospital beds and by the physicians who wish to help them.

MODERN CONCEPTS OF WAR NEUROSES*

The Ludwig Kast Lecture

BRIGADIER GENERAL WILLIAM C. MENNINGER, M.C., A.U.S.

Director, Neuropsychiatry, Consultants Division, Office of The Surgeon General, U. S. Army

As a conservative estimate, there are at least a million more people in this country tonight than there were three years ago, who have heard of, have dealt with, or are personally concerned with that medical entity called psychoneurosis. Many millions more are familiar with pseudonyms for this illness—operational fatigue, combat fatigue, combat exhaustion. From the language of the G. I., one could add more terms descriptive of neurotic reactions such as gang plank jitters, slap happy, bomb happy, reple deple exhaustion, etc. We in medicine are confronted with the fact that the membership of the military and their families at home have become increasingly educated on this subject, for better or worse, during the last three years. It is now a paramount responsibility of the medical profession, not only to correct much of the misinformation that exists, but far more important, to understand and effectively treat this illness. There are many former soldiers among the three hundred thousand odd veterans who have been discharged from the Army because of this illness who will need medical help.

There is a certain incongruity in the fact that it was the war which directed such a bright spotlight onto neurotic illness. Certainly no medical condition which occurs in civilian life can compare in incidence with the psychoneurotic problem, the origin of which lies in the conflicts caused by the pressure of everyday activity, the competitive nature of economic and social life. About fifty per cent of all who go to a physician present primarily emotional difficulties that correctly classified are some type of psychoneurotic reaction to the problems in their lives. With this civilian background, it is not surprising that the strenuous existence of the Army precipitates further neurotic expressions. Thus, life in the Armed Forces focused conspicuous attention on this charac-

* Given October 8, 1945 before the Eighteenth Graduate Fortnight of The New York Academy of Medicine.

teristic of the American people.

Even more significant than the large number of individuals who are diagnosed by the doctor as psychoneurotic, is that sizeable segment of the populace which makes a difficult adjustment to life, though never develops a neurosis. They manage to get along reasonably well only because of some sort of support, some special indulgence, some particular type of relationship. There are many variations in such adjustments—the husband who lets his wife assume the masculine role, the wife who plays this role, the joiner and the hermit, the braggart and the gossiper, the daredevil and the timid soul. They are the objects of our observation and comments in the closed circle of friends and family. They are not patients of any doctor and may be productive members of the community. They are, nevertheless, neurotic. We, those of us with any psychiatric insight, should not fail to appreciate that all the rest of us make use of neurotic defenses to some degree; always when under special stress of the environment and often when the stress is entirely internal.

With the psychoneuroses and the neurotic adjustment reactions, psychiatry is familiar. The growth in our knowledge of the understanding of the anatomy and the physiology of the personality has given us a reasonably clear picture of the mechanisms behind such relationships and behavior. It is the consensus of the great majority of the psychiatrists in the Army and the Navy, that the same mechanisms are operative in the military and that the same clinical pictures occur as we see in civilian life. Essentially, the response is the same when John Smith cannot adjust himself to the family at home or the artificially created family situation in the Army; when Paul Jones cannot stand the tempo of the factory and is unable to stand that of the Army.

There is, however, a group of reactions in the Army which does deserve special consideration because of certain features in the dynamics of its development that are characteristic. There are personality disorders occurring in the course of combat which, though not new, are at least different from those customarily seen in civilian psychiatric practice. It is this limited field to which I shall devote my attention.

Background for Understanding Combat Exhaustion

A prerequisite for understanding either pathological processes or pathological states is a knowledge of the normal. This entails not only

anatomy but physiology and applies to the psyche as well as to the soma. In spite of the difficulty of condensing such an explanation into the time allotted here, it seems desirable to set forth certain fundamental facts regarding the personality and its functioning that are well known to dynamically oriented psychiatrists, in view of the fact that the main point of this discussion is psychopathology.

A child is born, as any other quadruped, primitive, cannibalistic, asocial and uninhibited. The personality at birth is endowed with the two recognized fundamental drives of aggressiveness and erotism, perhaps more broadly described as destructive and constructive urges, as hostility and love. With growth and training the personality develops its individuality with a conscious regulating portion which becomes the ego. The child learns to curb his instinctive infantile behavior through the training and supervision of his parents. Initially all restraint is exercised by these external powers. The child learns to control his aggression and is rewarded with love. Beginning in his early childhood, he unconsciously incorporates this control function within himself and psychologically includes this function of his parents within his own personality as his conscience.

When the personality is mature, failure on the part of the ego to control the aggressive impulse is always accompanied by anxiety. Consequently anxiety comes to be a signal of disturbance within the personality. The impulse acts as a threat to the security of the ego which has from experience the foreknowledge of the disapproval from the conscience. The picture becomes complicated when there is, in addition to the internal threat, an external threat in the form of danger. Psychiatrically, it may or may not be rather simple to differentiate anxiety which arises because of a disturbance within the personality from the apprehension or fear that arises from the external situation. Thus, the compulsive individual often may manifest anxiety without any external danger or threat. In some instances, we see great apprehension or fear due entirely to external danger which superficially may resemble anxiety. Or they may be combined, as in the case of the combat soldier.

Thus in a very over-simplified condensation of the dynamics of anxiety, we see that its origin is the unconscious aggressive impulses which threaten the ego which if it fails to control them is criticized by the conscience. The conscience also becomes of special significance to the combat soldier, in that its critical faculties of certain behavior are re-

laxed and its individual idealism or code is, to some degree, displaced by the group code. Its development, and in fact the development of the total personality, is subject to many variations with numerous potent influential factors.

The relationships of the soldier with his father and with his siblings may both greatly influence his acceptance of his military role. Ideally the child likens himself to his father, following an initial and important struggle in his orientation toward authority. When this identificaton has been relatively smooth, the son accepts the role of submission to this father authority, becomes dependent upon him and borrows psychological strength from the process. Where the ideal role has varied and the son has developed no identification, where he has continued to resent the father and his authority, one must expect difficulty in all subsequent situations where the individual must be subservient to a father figure. This has frequently been encountered in the adjustment of the soldier to his leader and is of special significance for the man in combat. Except as eccentric daredevils, such soldiers are a liability in combat, but only a small minority fall in this category. The great majority transfer their original unconscious relationship toward the father to their commanding officer.

Further complications in the development of the personality are of special importance in some soldiers. Even in ideal maturity, recognized unconscious patterns of reaction exist between siblings. Associated with these are positive and negative feelings of affection and hostility. In the soldier's situation, the buddy may unconsciously come to represent a particular sibling and his reactions are, to some degree, predetermined by his relations to his true sibling. Sometimes there is a strong attachment with minimal negative feelings and sometimes a strong attachment despite strong negative feelings. Army life in itself is often conducive to very strong attachments between men. They share training, experiences and dangers. When one is wounded or killed, such experiences alone may explain much of the reaction. On the other hand, where a previous sibling relationship existed in which there was unconscious hostility, this may be the chief determining factor in the symptomatology of a breakdown. One must postulate that in all cases, the early family relationships condition the soldier's behavior toward his associates.

One must not ignore other factors operative during the formative period which have also influenced the pattern of the soldier's person-

ality. These make up the total social environment in which he grew up to function as an individual. Civilization represents an extension of the original parental influence as a curb of the primitive man, which aims toward social maturity of his group. For the soldiers in this war, there were many special national problems and attitudes present which directly influenced their childhood and adolescence. Some of these were parental unemployment, the struggle of democracy versus dictatorship, an isolationism in attitudes of our people toward the rest of the world. There were the good and the bad effects of radio, screen and transportation speed which developed concurrently with the soldiers of this war.

In addition, the tradition of the American culture is to produce a personality with emphasis on individualism and independence. Deeply ingrained self-respect and a high degree of self-determinism were American characteristics and these were coupled with a free and unrestricted privilege of self-expression. Such were the influences to which the personalities of our soldiers were subject.

New Environmental Stresses in Becoming a Soldier

Pearl Harbor caught us unprepared to aggressively express ourselves in war against another nation. In contrast to the belabored debate of the months preceding, as to whether or not the show in Europe was any affair of ours, the psychological effect of Pearl Harbor on the nation was to cement us into a singularly unified attitude. Unfortunately, before many months had passed, that unanimity of opinion and determination of purpose became somewhat decimated and vague. At the same time, men were regularly and speedily taken into the Army in large numbers. What was their motivation as they joined the Army? One has to conclude that in a great majority of instances these men, being law-abiding citizens, came in because it was the will of the country. Not a few had a resigned attitude, and undoubtedly the lack of emotional tone in the populace at large led many to feel that fate had played them a poor game. They went because it was their duty, but rarely with enthusiasm or conviction.

When the man became a soldier, there were changes in his external situation which demanded major readjustment. He gave up his normal gratifications almost entirely. He had to accept separation from his family, his home, his job, his friends, with little in prospect except the possibility of adventure. He had to give up his individual identity and

become a member on a team, with the only reward being his identification with that team. He had to accept severe privations in return for very restricted gratification.

For that group of men who had to go into combat, there was another series of adjustments required, those for which there is no parallel in kind or degree in civilian life. The personal danger surrounding the combat soldier made all other adjustments pale into relative insignificance. The neecssity of throwing over all previous ideals, not only of his own conscience but of the group conscience to accept the requisite of killing to avoid being killed was a greater change than many people realize. Frustration was a daily part of his life, sometimes in the form of waiting—days, weeks, months; sometimes in the deprivation of essential supplies. Confusion was routine in his life and the noise and whistles and flares of battle are beyond the imagination of anyone who has not heard and seen them. Insecurity was constant, not only in his personal doubts of himself, but also the doubts regarding his orders, doubts about the leader's ability, and knowledge, doubts as to whether the higher-ups understood and would act, or permit him to act. In addition to all this, was the extreme physical discomfort, the loss of companions, the ever present pain and death.

All of these factors operated on the personality and it is amazing that so many American men tolerated them so effectively. There were comparatively few compensations, few supports against all these pressures. But without question it was these supports that enabled them to function. Probably the most important of them was the leadership of the unit. Psychologically the leader is well recognized as representing the strong father figure who is interested in the individual, who is looking out for him, who is considering him, who knows what he can do and actually leads him. Nearly as important as the leadership, however, was the group identification, the esprit de corps created by close association, the common aim and mutual sacrifice. Many soldiers freely admitted that it was chiefly because of their feelings of loyalty and devotion to their associates that enabled them to go on. Their individual civilian-life conscience was displaced by a group conscience, which served both in a positive and negative fashion. Positively it gave them permission to kill, a behavior antithetical to their entire life ethics and training. Only through group permission and approval could they do it and even then it was often very difficult. The group conscience sup-

ported them in a negative way—it prevented them from quitting because of the fear of group disapproval. The close personal attachment to and dependence of a soldier on one or more members of his group, his buddies, was a very important force in maintaining his combat ability.

Other definite aids to the withstanding of the external stresses of combat were the soldier's training in discipline and obedience and along with it the confidence in his own ability and in his weapons which was developed through such training. He was sustained by his own physiological responses, the result of stimulation by excitement of the autonomic nervous system which enabled him to be aggressive. A minor, but in some instances an important reënforcement, was the glorification of the mission in which he was partaking, a glorification which in the extreme made even death seem a little less unattractive; at least he faced the prospect of a hero's death.

Psychological Changes in a Soldier to Meet These External Changes

While one may enumerate the various supports and compensations which helped make a soldier able to face combat, they alone were not enough. Less apparent dynamic changes in the personality were necessary to effect adjustment. It is important to recognize that in the majority of instances these changes are unconscious and therefore automatic, but without a doubt must occur for the individual to effectively meet the demands made upon him. The first of these is to change from his civilian independence with initiative and self-expression to a dependent role of submission to leadership orders and group requirements. Granted that the soldier has an opportunity, in a limited degree, to develop his individuality in certain isolated instances, the winning of a battle demands that the good soldier rely on his superior, and that he accept and carry out his superior's orders promptly and exactly. He must therefore accept a predominately dependent emotional role. This acceptance, while difficult for some, is welcomed by others. In any event this change may bring unconscious satisfaction in that it requires the man to shed responsibility, to live on the decisions of others, to have his daily life planned, to passively be the recipient of his food, his clothing, his shelter, such as it is.

This passive relationship grows more rapidly and becomes acceptable when the soldier feels secure through his confidence in the symbolically

all-knowing, all-powerful father, his commanding officer. Subservient to this officer and under his direction he learns to modify a lifelong constructive drive in order to allow the functioning of a primitive, destructive one. Only with this help can the average man shift from a constructive civilian life to a chiefly destructive soldier life. Even so, the change is so difficult that severe psychological problems arise.

Many soldiers never had to make the psychological adjustment to the process of actual killing and seeing the result of their aggression. The bombardiers, the artillerymen rarely, if ever, saw the result of their work at close hand. In contrast, the infantry soldier often, if not regularly, was in a position to observe his effectiveness. Because of this there were many instances when soldiers who could not bring themselves to kill, even under the pressure of facing leader and group censorship, became ill from the psychological conflict involved. In other instances, a soldier might reach a saturation point, a limit to his ability "to take it"—referring specifically to his necessity to kill.

Other factors come in play in those occasional situations where hand to hand combat takes place. There the imminent external threat is sufficient to overcome the influences of the conscience, even in those who under less threatening circumstances found difficulty in killing.

Another dynamic change in the functioning of the soldier's personality is the necessity to shift his investment of affection from individuals to a group. Throughout his life he has had a fixed and more or less constant association with certain individuals—mother, father, siblings, wife, children, long-time friends, with whom he has shared love and interest. They have been, quite literally, his world. These he must temporarily set aside and from them he must shift, for his immediate investment of affection and return of interest, to a strange heterogeneous group of men, to a diffuse group love in contrast to his previously specific individual love. Certain members of the unit gradually become his inner circle, and maybe his chief support, but the major identification for an effective unit must be made with the group and he must fuse himself with it.

This review of the dynamic forces in the life of the soldier about to go into conflict indicates that he must accept an emotional regression to an earlier developmental stage in order to permit his acceptance of the essential dependent passive role. This does not imply that he must make an intellectual regression or that the whole procedure is accom-

plished with considerable insight. It is nonetheless through such regressions that he can mobilize and express the primitive aggressive drive present in everyone of us which is essential to the functioning of a fighting man. This regression in no sense lessens his need to protect himself and undoubtedly the external threat is a major stimulus to the expression of this aggressive drive. It is through the full approval of the good (father) leader that the dictates of the individual and personal conscience can be ignored. If either the leader or the group approval is not constant, the soldier's main psychological support is lost. Consequently, we must recognize that the soldier, even before he starts combat, is in the predicament that not only is he faced with an extremely dangerous external threat but with a potential internal threat.

The Development of a Neuropsychiatric Reaction in Combat

One must see the combat casualties in this stage setting. In general, there are two large groups of reactions with no sharp dividing line: first, those individuals who are grossly predisposed to maladjustment, and second, those with minor or no apparent predisposition. In the first group, the combat casualty presents a familiar neurotic response, similar to the picture seen in civilian life. Even though the soldier had succeeded in making a passable adjustmtnt to all his pre-combat training, the stress, and usually some specific feature of combat—upset the balance of his equilibrium. Such patients initially present typically neurotic defenses—conversions, obsessions, psychosomatic complaints, etc.

In both of these groups one may observe various devices used to protect the individual against his anxiety. Many soldiers adopted a fatalistic attitude expressed in the remark, "one of them has my number on it and when it comes, it comes." The utilization of omens, charms was common. These all represented a magic protection of the ego and were common to all soldiers. One could discern cumulative effects of various events although the anxiety is controlled. With increasing fatigue, one might often note a slight impairment of the individual's judgment, his tendency to carry out repetitive activity, such as jumping in a fox hole without adequate testing of the reality situation. Such automatic responses were even active in places of relative safety. In many instances a narrow escape, the death of a platoon member were contributory. A very common observation was the case of a wounded man who only began to develop anxiety as his wound healed and he

was confronted with a return to combat duty.

A second group of soldiers, certainly the majority, appear, at least superficially, to be normal personalities reacting to abnormal stress. They give no history of previous maladjustment in civilian life, no history of distress to themselves or their family. However, these soldiers must have some predisposition, minor though it may be. Undoubtedly, the outcome of their reaction to combat depends on the degree of this predisposition. It is gratifying to know that the majority, probably the great majority, responded sufficiently under appropriate treatment to permit them to carry on. That their experience leaves scars, there is no doubt, but certainly in many, these scars are not sufficient to seriously or permanently disable them. Our figures indicated that sixty per cent of the psychiatric casualties from combat were able to return again to service in the Army area, and at least fifty per cent of these, in certain instances more, returned to actual fighting. We should have no illusions, however, about this group. The Army medical officer's function was to return the soldier to duty. Neuropsychiatric casualties, if adequately rehabilitated, were no less expendable than rehabilitated surgical casualties. If they were well enough to do further duty, that was their assignment, and many carried on indefinitely. The permanent effect of the Army experience, and specifically that of combat, on their personalities will only be known with the passage of time.

There is also a group of men, in whom the predisposition, even though not apparent on the surface, was serious enough so that they did not respond quickly to treatment. An additional larger number showed a delayed reaction; they completed their tour of duty and only then, under different circumstances, perhaps as they returned home, did their psychological battle scars manifest themselves. In every instance of these delayed reactions, there is very good evidence to believe that there was a specificity for the individual in the final event or situation which served as the precipitating factor.

Grinker and his co-workers very adequately describe the various types of regressive pictures based on their chief symptomatic expressions under the groups of passive dependency, psychosomatic reactions, guilt and depressive reactions, aggressive and hostile reactions and psychotic-like states.

The immediate clinical picture was colored far more by the combat situation than by the individual's particular personality. This was as

true of the man who broke down in the first few days as of the man who broke after many months of combat. Their clinical pictures were remarkably similar. From a psychological point of view, such reactions were the result of cumulative stress. In both cases the man had reached his limit as a result of physical fatigue, the continuous threat to life, the single or repeated psychological traumata, all of which had exceeded his capacity to handle.

The clinical picture has been described by several combat experienced psychiatrists. The prodromal symptoms are most frequently irritability and disturbance of sleep. The individual is aware of his increased sensitivity, his "startle reaction," his involuntary self-protective motor responses to sudden noises. Sleep becomes disturbed because of sudden involuntary starting or leaping up because of noise stimuli or disturbing dreams. The soldier himself may recognize his symptoms or the man's behavior or change in personality becomes apparent to those about him. He may become more seclusive and silent, or on the contrary, more talkative; he may be restless, may smoke excessively if the opportunity permits. He is aware of an increased apprehensiveness but paradoxically is less able to concentrate. He frequently shows somatic symptoms such as mild tremor, incontinence of urine or feces.

There was a monotony in both the complaints and the symptoms as seen by the physician in the aid station or by the psychiatrist at the clearing station. The complaints differed depending upon the stage of personality disorganization; in the majority of cases they followed a stereotyped pattern: "I just can't take it any more," "I can't stand those shells," "I just couldn't control myself." The symptoms varied only slightly from patient to patient. Whether it was the soldier who had experienced his baptism of fire or the older veteran who had just lost his comrades, the superficial result was very similar. Typically he appeared as a dejected, dirty, weary man. His facial expression was one of depression, sometimes tearful. Frequently his hands were trembling or jerking. Occasionally a man would display varying degrees of confusion, perhaps to the extent of being mute or staring into space. Very occasionally he might present classically hysterical symptoms. Some of them knew that they were "combat saturated" and that they might be through so far as fighting was concerned.

Such is the common immediate reaction, one that does not on its early symptomatology fit into any of our known diagnostic categories.

For this reason, the widely used terms of combat exhaustion and operational fatigue have probably been very practical for their utilitarian aspect. They have the disadvantage of implying that physical exhaustion or fatigue plays a major role. It no doubt does contribute an influence, varying in different situations, but it was never possible to set up a series of physiologic experiments which might have given some index as to its actual effect. On the basis of broad experience, it has been estimated that not more than 3 to 5 per cent of the reactions were due entirely to fatigue. In the other 95 to 97 per cent the condition was primarily a personality disturbance and was treated as such.

The commission of five civilian psychiatrists who visited the European Theater in April and May of this year were united in their opinion that the picture of psychologic disorganization did not correspond either in its moderate or in its extreme form to any recognized or established psychiatric syndrome. They regarded the term "combat exhaustion" as a practical term to apply to this temporary condition, out of which various more definite and more familiar syndromes evolve. This diagnostic label does not apply beyond the initial state, and as such represents a transient psychiatric reaction to combat, that may or may not progress to a more clearly defined clinical entity. Consequently, it has no applicability beyond the immediate response. It does not apply to the further evolutionary stages, the typical psychoneuroses, nor does it apply to the delayed symptoms so often seen, those typically regressive phenomena, in men who have completed their tour of duty, which occur at a time when the support of the group and the leader is gone.

Psychodynamics of Combat Exhaustion

The psychodynamics of combat exhaustion include four significant features: the depleted ego strength, the specific precipitating trauma, the mobilized aggression and the loss of the ego supports in the form of leadership and group identification. The depleted ego strength, the ability of the conscious personality is in every case cumulative, regardless of the length of combat. One must assume that certain types of personalities can withstand stress over a longer period of time than others, but the breakdown of the soldier in combat, whether it is during his first week or his fifteenth month, is related to his ability to withstand the stress, plus the avoidance of any specific psychological trauma which would overbalance his ability to adjust to the external demands. How-

ever, the cumulative effect is a major factor, so that whenever the specific traumatic event does occur, it may in some cases appear trivial. Just as in civilian psychiatry, though it is often not possible to discern the specific precipitating factor in the production of mental illness, there is much evidence to believe that it is always present. The soldier may or may not be able to describe certain events which may have been the final straw—the death of a comrade, the hopelessness of a particular assignment, a broken promise.

Two factors permitted the soldier to express his aggression. One of these was the external situation, the necessity either to kill or be killed. The other and probably the more significant, in the situations which were less immediately threatening, was the approval and command of the leader and the identity with the group which shared the common aim. When and if these psychological factors suddenly disappeared, one found the dependent ego with a high degree of activated aggression with no outlet to express it. In the very rare situation, the soldier might carry on alone; such were likely to be the winners of Congressional Medals of Honor. Much more often, with the loss of the leader and/or the group, the soldier was at a loss. The combination of his helplessness and his activated aggression invariably created anxiety.

It is the ego's normal function to maintain the integrity and equilibrium of the personality against both the external stress and the unconscious forces within the personality. It is helpful to think of the ego as having a given strength, of a strong or weak ego, of increased or decreased ego strength. In the combat soldier, the continuing effect of combat accumulates and drains the ego's ability to maintain balance. In the specific traumatic event of the final wound, it must attempt to control a powerful aggressive impulse which it can now do with only limited success. Its failure gives rise to anxiety which, if transformed into symptoms, comprises the clinical picture—the irritability, the sensitiveness and jumpiness, the depression, the inability to concentrate or accomplish even relatively simple tasks, the dreams which recur so characteristically in the combat psychoneurotic personality.

In many medical conditions, even the pathology represents an unhealthy attempt to rectify or alleviate the cause of that pathology. This phenomenon is even more pronounced in psychiatry in which the symptoms are, in a sense, an attempt at a solution of a conflict. A special characteristic of some mental symptoms is the tendency to repetition,

so brilliantly described by Freud as a repetition compulsion. This process is a conspicuous feature of combat exhaustion and is perhaps best illustrated by frequent similar dreams. The dynamic significance of the dreams, in general, is that they are an effort of the unconscious to resolve the conflict by mobilizing the anxiety to expression. Because the whole dream process is unconscious, the individual is not relieved and may be so disturbed by the dreams that the illness is aggravated. This creates a situation in which the individual is stimulated but is not permitted physical expression, and the more the physical expression is inhibited, the greater becomes the anxiety. Unless there is aid given to bring the conflict and its resolution to the conscious level and into reality, the neurosis continues. What was originally stimulated by an external threat becomes internalized and without help may become an insoluble vicious circle. The unconscious emotional pressure continues to produce anxiety in increasing amounts without conscious recognition of its causes.

Conclusions About the War Neurosis

In summarizing the main features of the war neurosis discussed above, one needs to remind himself that this group of reactions to combat represents only a small percentage of the total psychiatric problem of the Army. It does not include the neurotic reactions occurring in basic training, on boarding ship, in sitting on a lonely south sea island, in weathering a monsoon season in India. Nor does it include the 25 per cent of all types of discharges for psychiatric reasons because of warped character development. All of these groups are familiar to psychiatry and differ in no way from the same pictures in civilians except in the environmental situation in which they developed or became apparent. Very often they were revealed only because of that situation; they might have gone unnoticed in civil life.

Only combat reactions, represent the true war neuroses. They too become apparent only because of the situation. They have been described as the normal response to abnormal situations in which the stress was far more severe than in civilian life. It is reasonable to assume that many men developed these reactions who might well have gone through civilian life without manifesting any gross maladjustment. Furthermore, many who did suffer from such traumatic experience apparently recovered quickly, even to the extent of successfully continuing

the same severe test of adjustment.

In summarizing the dynamics of combat breakdowns, there would appear to be a combination of the severe cumulative external stress, a varying degree of predisposition, a peculiar psychological setting in which the combat soldier functions and a specificity of some particular event which precipitates the incapacitating result. Any or all of these may vary in each individual case, some of them being all important in one instance and inconspicuous in another. When the final straw is placed on the soldier's back, the immediate result appears very similar in all cases. Fortunately, with relatively little help the majority promptly readjust. For the remainder, and numerically the group is large, there was and will be need for further psychiatric treatment.

Only as we understand these dynamics can we understand the symptoms which we may see in the veteran patient. His weakened ego cannot handle the aggressive forces which have been activated. His solution is to regress to simpler functioning level. In some cases, instead of returning to his normal adjustment he remains in the regressed stage of development where he can express his passive dependency, his depression, his hostile reactions, his somatic complaints. He cannot explain his symptoms–his feeling of helplessness, his stomach disorder, his irritability and impatience, his tendency to fly off the handle, his failure to find satisfaction, his resentfulness of all but his own group. Some will return to civilian life with a tendency to feel that no one understands and with latent, or expressed, paranoid attitudes. They do return, in a sense, to a foreign atmosphere but their attitudes are not caused so much by this fact as by their personalities which are heavily burdened with the conflicts arising from their battle experience.

Wtih this understanding on the part of the physician, treatment must be directed toward integrating the individual into his pre-war identifications and satisfactions. If he comes with emotional problems, with pent-up resentment which he cannot manage, these must obviously be released. With this release must come insight through psychotherapy, not only into the immediate situation but into the origin of these emotions in their relation to previously formed personality patterns. What is the treatment and by whom should it be given? No simple set of rules can be laid down but some patients are going to require expert psychiatric care and others can certainly be helped and probably readjusted by the intelligent, sympathetic physician who has some psychi-

atric orientation. In other words, some patients, to borrow an analogy from surgery, will need major and others minor psychiatric procedures. The former should be carried on by an experienced psychiatrist, the latter could be adequately directed by a general practitioner or a specialist in another field.

One might generalize by saying that if the patient has made an attempt to fit into his civilian situation and is consciously aware of his symptoms, is preoccupied with his traumatic experiences in the Army, has recurring disturbing dreams, the chances are that he should see a psychiatrist. Just what the treatment would be is hardly within the province of this presentation. In the Army, we have found that psychotherapy under sedation is a valuable short-cut to relieve the pent-up emotion. Hypnosis has also proven to be an effective therapeutic tool for this purpose. In both of these types of treatment, the ultimate success depends upon the skill and the knowledge of the psychotherapist.

On the other hand, if the patient is exhibiting minor evidences of anxiety in the form of restlessness, minor physical complaints or problems of adjustment to the people around him, it is very likely that the general practitioner can and should help meet these problems. In so doing, he needs to appreciate that sometimes he can help directly by merely being a good listener and pointing out the inconsistencies, the discrepancies in the man's thinking and feeling processes. Very often he can make positive suggestions with regard to the manipulation of the environment. If one could insure sufficient family affection, economic and social security, easily accessible ego gratifications and good physical health, many of these veterans would be helped if not entirely rehabilitated.

When one takes into consideration the fact that 315,000 soldiers have been discharged from the Army for neuropsychiatric reasons, he may grasp the importance of this problem as a post-war challenge to medicine. A fair percentage of these have had combat experience and will present the dynamics and the clinical picture described in this presentation. It is to be hoped that all physicians will prepare themselves to accept and to treat what the Army medical officers discovered were among their biggest problems—the emotional factors in the production of illness.

WHAT CAN THE PRACTITIONER DO IN TREATING THE NEUROSES?*

THOMAS A. C. RENNIE**

Attending Psychiatrist, New York Hospital; Associate Professor of Psychiatry, Cornell University Medical College; Director, Division on Rehabilitation, National Committee for Mental Hygiene

THIS brief presentation cannot hope to teach the techniques of psychiatric therapy. But if it should serve to stimulate interest, sympathy and coöperation for better medical care of sick people, it will have done much. The practitioner's function is to treat people, not diseases. There are few diseases that have not their emotional components, and this is often of first importance in the etiology, the course the disease may take, the length of convalescence and recovery or chronicity. The old-time family doctor was uniquely successful in treating his patients because with no knowledge of psychiatry he knew them as people, their families, their backgrounds, their communities, and their day-by-day problems. With the increasing specialization of medicine, and the growing preoccupation with particular areas of the human body, the person having the disease came more and more to be neglected. The specialty of psychiatry has brought into modern medicine a renewed emphasis on the importance of knowing a human being and it has developed specific techniques and procedures of scientific validity for the understanding of the person. With knowledge of these principles the physician will be in a better position to practice what Dr. David Barr felicitously calls "comprehensive medicine." Could such an orientation be guaranteed to every young graduate there would be less unnecessary surgery performed, more patients would be provided support and understanding throughout their illness and numbers of human beings could be spared the process of running fruitlessly from one doctor to another in search of help which they do not find. The practitioner is in the major position to help troubled and emotionally sick human beings. To

* Read October 8, 1945 before the 18th Graduate Fortnight of The New York Academy of Medicine. From the Department of Psychiatry, Cornell University Medical College.

** In the organization of this paper, full credit is given to Gen. Wm. C. Menninger and to his publication of War Dep't. Technical Bull., T. B. Med. 94, which contains the most concise and helpful statement for general medical men the author knows.

this end it is of the first importance to attempt to elicit from every doctor his interest, sympathy, curiosity and his desire to help sick people in the fullest sense.

War and the experience of army doctors has brought a renewed awareness of this need and has revealed disturbing facts concerning the number of people who require such attention. Wartime findings have revealed that over two million able-bodied men are in need of this kind of medical help: 1½ million psychiatric rejectees revealed by selective service, ½ million dischargees for psychiatric disability and ¼ million suffering from psychosomatic or neurotic components in their disease process. There is little fundamental difference between the neurotic responses of veterans and those of ordinary civilian experience. Behind all these war neuroses lies the same etiology. In the military experience the precipitating stresses are greater and the dynamics are more readily available and more easily understood. The principles of treatment are the same. These facts of prevalence should not have been surprising for we have always known that 40-60 per cent of all patients who go to doctors need this kind of understanding for their cure. This same high incidence of emotional disturbances is evident in patients admitted to general hospitals for conditions not recognized as emotional in origin: 27 out of 100 at the University of Chicago Hospital, 30 per cent at the New York Hospital. This presentation tonight might not be necessary if there were enough psychiatrists to begin to meet the problem. Only about 3500 exist out of a total of 185,000 doctors. It is evident, therefore, that if the vast majority of these and other human beings are to be helped, it will be by the general practitioner.

In analyzing the failures of our past medical efforts certain difficulties can be offered in extenuation. The psychiatrist has failed in his task of education. He has been too long isolated from the stream of general medicine. He has worked in hospitals remote from general hospitals, he has been unable to share his specific knowledge and techniques, too often beclouding his work in strange incomprehensible language. He is frequently a poor practitioner, unable to combine the resources of internal medicine and psychiatry in his diagnostic evaluations. On the other hand, the practitioner has remained equally aloof from psychiatry. He frequently has ingrained attitudes of pessimism and nihilism towards it. He lacks the confidence to attempt the evaluation and treatment of emotional factors. He complains of the time involved in the process and

claims that the techniques are intangible and non-scientific. Such objections are not valid. To be sure time is involved, but little more than in any really comprehensive physical work-up with its long delays in X-ray and laboratory studies. The results of psychiatric therapy are often striking and constructive as is seen in the rapid recoveries now obtainable by electric shock, insulin, hypnosis and the use of sedation-interview techniques. Psychiatric techniques are scientifically valid and although not measurable by the usual sensory perception methods of internal medicine, they are nonetheless grounded on sound principles of observation, evaluation, and the pragmatic test of recovery.

Until the practitioner's attitude toward psychotherapy can be brought to one of constructive optimism, little can be expected from him as a therapist. He must begin with the conviction that medicine deals not primarily with disease entities or organ pathology but with human beings reacting to various kinds of noxious stimuli. These may be chemical, bacteriological, physical trauma or emotional unrest. Whatever the precipitating factor the end result is the same: a sick human being. There is no such thing as differentiating between organic or functional; it is always both. Pre-eminently the practitioner still has to learn to recognize emotions in their many varieties and their effect upon the living being. His greatest effectiveness lies in the taking of a complete and proper history which gives due emphasis to the individual's emotional make-up and responses. He must learn how to establish an effective rapport or working relationship with his patient and he will succeed in this in direct proportion to the degree of genuine interest he shows. This is facilitated by his sensitive and kindly inquiry into the patient's personal life, his respect for the facts he obtains thereby, his genuine unfeigned desire to be helpful, his unspoken interest evidenced by his undivided attention, by his capacity for silence, by his facial expression—his smile, his gesture, and by his mere willingness to take the time to listen. He must learn to recognize that everything the patient says and does is of importance, that the patient's reactions during the physical examination may be as important as the patient's utterances in revealing sensitiveness and prevailing attitudes and emotions. Equally important, he must learn to observe and evaluate his own reactions toward the patient. Only thereby can he avoid those common pitfalls: that he will tell the patient there is nothing wrong with him, or that his troubles are "imaginary." Or he may immediately resort to sedatives for relief

when they are clearly not indicated. He may put too much attention on the physical examination thereby heightening the patient's anxiety and implanting the wrong impression that things are seriously at variance from the normal. He may waste time in protracting his laboratory studies to no avail, or more importantly, he may let his own emotional responses color his evaluation and management. Unless he understands his own emotional life, he may err in the direction of too much sympathy, paternalism, and protectiveness, or the converse: indifference to the problem, abrupt dismissal of the patient, peremptoriness, show of annoyance, disdain, anger, scolding, or thinly disguised punitive behavior. Perhaps such self-analysis is asking too much of the practitioner. He may be little inclined to study or analyze his own emotional responses toward his patient. Although he would be a better psychotherapist if he did, it may be enough to ask that he learn to control his own emotional reactions to his patient. If his attitude is primarily disdain and annoyance toward neurotic patients, he should not try to treat them.

He need not be seriously concerned about psychiatric diagnostic terms. Diagnoses are at best convenient labels. They add little to the patient's understanding of himself. They often confuse and cloud the issue and they are quite unimportant compared to the understanding of the facts and how they work. The diagnosis of psychoneurosis can badly frighten a patient who is little prepared to understand its meaning and who has heard so much about it in these years of war, with all the unfortunate and frightening connotations that it so frequently and falsely conveys to the uninformed person. To tell him that he has a nervous illness or that he is emotionally sick is usually acceptable and does no harm to the facts or to the patient.

To every physician of experience certain common and frequent problems of an emotional nature present themselves daily in his practice. Common sense has taught him to recognize the psychotic or grossly mentally disturbed individual. He knows that delirious reactions can occur from fever, over-medication, alcohol. He has seen patients in postoperative states of excitement. He can easily recognize the seriously depressed individual with his suicidal preoccupations. With these problems he is relatively little concerned since they are obvious and usually require the psychiatrist's attention. More commonly, however, he will encounter the patient with well-defined organic illness who reacts with strong emotion to it resulting in delayed convalescence, protracted

symptoms and failure to respond to the usual medical regime. Secondly he will encounter those individuals whose disease picture represents a combination of physical and emotional problems (such conditions as peptic ulcer, colitis, hypertension, asthma, etc.) where he needs to know that the patient's emotional state may be the fundamental cause, may aggravate, may explain fluctuations, or may indeed determine the entire course of the disorder. This group of patients fall under the heading of that much misused term "psychosomatic illness"—that area of medicine in which the patient's illness is most effectively treated by the joint coöperation of internist and psychiatrist. There is growing evidence to believe that many of these states begin first with emotional unrest and that protracted states of emotional upsets may ultimately lead to permanent and irreversible organic changes. Thirdly he will recognize that group of patients whose genuine physical complaints are primarily expressive of emotional disorders. These are the fatigue states and the insistent bodily or somatic complaints which the ordinary techniques of medical examination are inadequate to explain. Fourthly, there will be those patients whose complaints are predominantly psychological in nature. These individuals put to the foreground their symptomatology of anxiety, fear, obsessive thoughts and compulsive actions. Some of all of these groups of patients may have spontaneously recognized the role of their emotional disturbances in the cause or particularly in the fluctuation of their symptoms. They will have partial insight. The practitioner may be as yet little acquainted with the fifth group of patients, those who present the interesting phenomenon of repeated accidents whom we have come to recognize as representing a special kind of personality make-up. The industrial physician recognizes this group, for he knows that the majority of accidents occur repeatedly among a small group of workers. The surgeon, the gynecologist, the genito-urinary and other specialists will recognize their particular problems of individuals who do not respond to repeated manipulations, who get persistently worse because of them, who may be rendered chronically disabled unless techniques other than physical manipulation are employed. There are patients who seek and crave operations, others who seem almost addicted to genital, pelvic and cystoscopic procedures. Finally, every physician must learn to recognize the depressed patient with his characteristic sadness, insomnia, weight loss, gloomy outlook on life, and his potential risk of suicide. The practitioner can learn to treat depressions, anxiety

states, fatigue reactions, hypochondriacal illnesses, and psychosomatic disorders. He is not equipped to treat more involved neurotic reactions.

What, other than recognition, can the practitioner do about these disorders? First he must become convinced that these states are never conscious or feigned or deliberate, that they are beyond the average patient's capacity to resolve, that the true causes are largely unconscious or unknown to the patient and that they are always indicative of emotional conflict within the person. The simplest analogy is that which happens with anxiety. We are all familiar with normal anxiety responses, because we have all experienced it: the dry throat, the trembling hands, the tightening of the chest, the nausea, the diarrhea, the polyuria. The entire organism is involved in anxiety responses, and we have learned to study the cardiovascular changes, the increased leukocyte count, the metabolic and chemical imbalance accompanying anxiety. States of anxiety instead of being transient may become protracted, chronic, sweepingly disabling, and may arise whenever external stress or threat is present or whenever the threat derives from unrecognized conflicts within. Anxiety can be considered to be a natural defense mechanism of the human being which is called into play whenever the person is threatened. Many of the phenomena of psychiatry can be understood as the person's attempt to handle this anxiety. The patient may experience it directly with all its attendant physical discomforts. He may attempt to protect himself from its pain by the development of physical complaints. He may deny it and escape from it in the substitution of hysterical symptoms with its characteristic emotional indifference to the symptom. He may project it upon others as blaming and suspicion; or he may rationalize it to himself by all kinds of thinly disguised and false explanations. None of these mechanisms are deliberate; anxiety in essence then represents the attempt of the sick individual to achieve some kind of balance within himself. The degree of anxiety he can tolerate or the point at which any human being reaches his dilemma of sickness depends in part upon his constitutional stability and capacity to bear stress, by the severity of the noxious stimuli or events of his life, or by the degree and stress of his internal conflicts. It is important for the practitioner to recognize also that the organism can be similarly thrown off balance by other emotions such as anger, rage, resentment, fear, jealousy, and suspicion. The practitioner will be little effective, therefore, until he learns to recognize and deal with the vast range of emo-

tional responses of which people are capable.

The mere recognition of these facts, although helpful, is not enough. What can the practitioner do about them once he is aware of them? In the treatment of these conditions he needs to know that hospitalization is rarely an adequate solution, that it may make the condition worse by providing too much attention, by putting a premium upon illness as a mode of reaction, by recourse to bed rest with its attendant increased preoccupations. These patients are best treated as ambulatory patients in repeated visits to the physician's office. Such visits can be brief; a half hour may suffice if the patient is not merely permitted to repeat symptoms but is obligated to search into causes. Similarly the practitioner should know that like most surgery the effects are best when therapy is begun promptly, skillfully and as early in the illness as possible. His main tool will be language and conversation. He must recognize that he will play a vital and significant role in which he will find the patient thrusts upon him all kinds of emotional feelings, few of which are related directly to him, most of which represent the transfer to him of feelings, attitudes, and emotional responses that have their origin long before in the patient's life. He must expect more than the positive emotions of respect and admiration. He must be equally prepared to accept the negative and hostile feelings which the patient may feel towards him. He must not be thrown off the track by the patient's anger, resentment, criticism or dislike. Some such feelings may inevitably appear as a phase in treatment. His therapy begins with his very first contact with the patient, is maintained throughout the physical procedures and hinges pre-eminently upon the process of history-taking. He begins with the patient's complaint, more often than not offered on a somatic level. He should not take the first utterance of the patient as the chief complaint for this often merely disguises the patient's fundamental problem. His next task is to understand the origin and development of the complaint in its chronology and in relation to the full activities of his patient's contemporary life, with particular seeking for evidences of dissatisfaction, conflict or anxiety relating to contemporary financial, occupational, marital, familial, social, religious, and sexual tangles. Very soon he will see that the onset of the symptoms frequently coincides with periods of particular emotional stress or disturbing contemporary events in the patient's life. This is the present illness; the step-by-step account of the appearance and development of the main

complaint in its total personality setting.

With brief experience it will soon become evident that contemporary difficulties have their inevitable precursors in the earlier life period of the individual; that indeed they are commonly only repetitions of earlier and more basic patterns of adjustment or maladjustment. Where the material spontaneously emerges, a rigid history review may not be necessary. For the physician's own assurance of completeness of the review, and sometimes for the orderly accumulation of material, it is well to pursue a planned review. This constitutes the personal history. The patient is told that for the physician's fullest understanding of the current difficulties, certain early biographic material must be elicited. One begins then with the record of the patient's birth and untoward events. the outstanding data of the infancy and childhood period, the evidences of early instability in the form of nightmares, sleepwalking, enuresis and other so-called neuropathic traits. The outstanding facts are then elicited of the school record, performance, and extent of education; the work record in terms of actual job successes, failures and reasons for change; the family status as to actual members and relations thereto; the place of the patient in the sibling group. The marital history and status is obtained chronologically with particular emphasis on the adjustment to husband or wife, the relations or worries about children, the general satisfactoriness or unsatisfactoriness of the sexual adjustment. It is well not to force confessions about sexual orientation during the first interview but to await the development of full confidence before eliciting the details of what is the most sensitive area of most patient's functioning. The general religious, racial and social adaptation as it relates to friends and community is surveyed for particular evidence of difficulties or failure of adjustment. The history of degree and extent of use of tobacco, alcohol, medication and drugs must be obtained.

A brief review of the family history is necessary with particular attention to the incidence of similar complaints among family members and to the incidence of more sweeping nervous, emotional or psychotic difficulties. The personality description spontaneously given by the patient as to his outstanding traits of personality make-up gives interesting leads as to undue emotional lability, dependency, conscientiousness, meticulousness, anticipatory anxieties, resentments, and hostility feelings.

The completion of the review will give the physician a preliminary

over-all view of the person and his major life problems. He should be able to formulate to himself his impressions as to the patient's general level of intelligence, emotional maturity or immaturity, the degree of his innate stability and the major stresses having a bearing on his present adjustment. If, on the other hand, the facts do not fall together into a picture that makes sense to him, he has every reason to ask for psychiatric consultation in order that the meaning and interpretation be clarified and his course of procedure be outlined. He is accustomed to referring unclear problems for specialty evaluation. The psychiatrist can serve the same function. In one or a few visits the psychiatric consultant can orient him to the problem and permit him to carry on unaided. Some patients will have simple problems that he can manage alone. Others may be more complex and require psychiatric evaluation. In still others therapy is best carried out jointly by internist and psychiatrist. In involved neurotic reactions, the therapy should be turned over to the psychiatrist.

Having ascertained these facts, what specifically can the practitioner hope to do about them? Pre-eminently he may decide upon one of two procedures: to help the patient rid himself of his crippling anxiety or to help him deal with it constructively and perhaps to wall it off. This he will do in two main ways: by helping to modify the unbearable situations of life or by attempting to modify the patient so he can better tolerate the unbearable situation. Both procedures are included in what is called psychotherapy. Let us examine this in more detail.

The practitioner may have found that the patient is faced with very real difficulties in his contemporary life. When these can be changed or alleviated they should be. This may involve working with the family, to give them understanding of the illness, to relieve their anxiety about the sick person, to give them confidence in the therapist's attempt to cure the illness, to discuss the problem of the tangled emotional relations with husband, wife, or parents, to help relatives to avoid over-indulgence or over-severity, to act as marital counselor, to help with problems of emancipation, to act as impartial arbitrator in family disagreements or to counsel in the sexual problems of husband and wife to the end that both have mutual satisfaction. Today fourth year medical students are discovering how enlightening a visit to the home of their patient may be in revealing attitudes, tensions and social-economic factors that bear upon the illness. A brief history from a close relative may

throw additional and revealing light upon the patient's problem.

Much can be done too in analysis and correction of unhappy, stressful work and school adjustments. Employers need interpretation and are avid for it as is witnessed by the rapid growth of industrial psychiatry. They usually welcome help in arranging work assignments and in understanding the workers' problems and needs. The physician can go far in actual arranging of a better and more appropriate work or school placement. If he is in doubt of what to advise, he can get professional help through employment counselors. It should be remembered that overwork rarely causes neuroses, although overwork at uncongenial tasks may aggravate it. Overwork is far more often the symptom of neuroses.

Where economic and social privations play a leading role, the physician can get help through the many social agencies in his community, the existence of which he is usually little aware. More importantly he needs to remember every human being functions best within a framework of work, play and relaxation which must be balanced. Attention to such simple needs can bring much relief: such things as the insistence upon regular exercise, vacations, rest, time for relaxation, the necessity of ending each day of work with a mind closed to the task until the next morning. He may prescribe play: a movie, or social evening or bowling, if need be. Many a patient has found in a sustained hobby an abiding relief from tension and daily strain. It is better than sedatives. Activity is important; bed rest and unearned vacations accomplish little in the neurotic. Specific principles of relaxation can be taught the patient: self-induced muscular relaxation, vigorous exercise of a non-competitive variety (swimming or riding, not golf or tennis), prolonged warm tubs, showers, massage, steam baths. The temporary use of sedatives can be used for emergency situations. The hygiene of sleep habits can be inculcated.

In brief, where obvious unbearable stresses exist in the actual contemporary life, they should be alleviated when feasible and practical. Suggestions are in order, but it is well to avoid too much regulation. The wise course is to help the patient come to his own decisions and choices regarding major or critical changes in his way of life, and to adhere to this no matter how much the patient pleads for the physician's authoritative decisions.

Situational relief of the kind prescribed, while important, may be

unfeasible or may be at best partial procedure. Far more important is the effort to help the patient achieve inner security, freedom from anxiety and an enhanced capacity to meet the actual stresses. This is pre-eminently the talking therapy; psychotherapy in its more specific sense. The aim of this is to have the patient talk out, get verbal catharsis, release, get his "problems off his chest" with the aim of gaining greater understanding of his emotional life and difficulties, so that he may manage himself more wisely and free himself of his crippling anxiety. In the process, the physician will listen more than he will talk. This can hardly be stressed too much. He must learn how to sit and just listen and he must forego the pleasure of hearing his own voice in order that his patient may freely have the time and freedom to say what is in him. He will invite full expression, and he will note whether talking brings genuine relief or merely upsets the patient. He will be guided in how far he can go and what topics to discuss by these observations. His task is not to dig out confessions, or premature discussion of sexual experiences, or to delve into unconscious motivations. His aim is to create an atmosphere of trust and confidence wherein the patient will spontaneously bring into the discussion his sensitive, anxiety-laden experiences, memories and phantasies. As the history unfolds he will recognize that contemporary problems always have their prototype in earlier patterns of emotional feelings, habits, and difficulties, particularly as they relate to childhood developments, the powerful family constellations and the prevailing habits of response to family members. It is surprising indeed how quickly and spontaneously the contemporary difficulties give way to the discussion of the early life with the heavy emphasis on the feelings and emotions experienced toward parents and brothers and sisters. With this recognition by the patient that he is transposing early feeling tones and traumatic emotions to contemporary people and situations, there may come a degree of insight that brings automatic relief from the present distress. More importantly the healing comes automatically with the talking and the sharing with the understanding physician.

Some degree of explanation to the patient of these mechanisms may be needed. Similarly explanations of the nature of his symptoms and how they are expressive of emotions may have to be given. The patient has to be taught these simple, to us self-evident, psychosomatic relations. They can be taught him by simple analogies; the somatic responses to talking in public, or to taking an examination, and he must then be

brought to see the relation of his symptoms to the emotions he has been discussing. This is easier if he can be shown that increase in discomfort commonly occurs when he is in a situation of particular stress. This process is what is meant by the technical term "explanation."

Hand in hand goes the need for reassurance. Here the physician's authorativeness and the patient's confidence gained through sharing are of prime importance. The physician needs to be sure of his negative physical findings to be convincing. He needs to have performed the necessary physical examinations himself. The findings of some previous physician will not suffice. The patient wants the reassurance of his therapist's examination and findings. Such reassurance may be necessary repeatedly in a frightened patient, but it should not be overdone lest it defeat itself by false and hearty optimism. It is more effective when offered sparingly and thoughtfully than too frequently and glibly. Properly used, it is a powerful and necessary tool, for it is the voice of authority and protectiveness. The physician should not promise too much, lest he lose face when the promised results do not occur. Once the physical status is settled, it should not be reopened unless for new somatic indications, for it may raise doubts of the physician's competence or certainty and undo all that has been accomplished.

This technique of reassurance may require added persuasion: persuasion that the physician is right, that the patient must relinquish his problem to him, and that the symptom must be given up. This is particularly true if the secondary gain of illness is great, i.e., where the patient enjoys his illness, profits by it in over-attention, sympathy or love, or finds it financially profitable in insurance or compensation. Persuasion may need to be more positive; strong suggestion, or direction, or even implied command. The psychiatrist's most persuasive tool of suggestion is hypnosis. He may use it to suggest or command the disappearance of a hysterical symptom. Frequently too, the kindly ignoring of the actual symptom is indicated. Suggestion must be recognized as a powerful weapon. Any medicine is more effective if it is given with confidence and assurance that it will work. Even the placebo which has no place in psychiatry can work miracles. To prescribe medicine with the formulation "this medicine has helped many of my patients. I feel confident it will help you" may bring about remarkable improvement. It should be warned however that suggestion is apt to be brief-lived in its effect and is only a temporary measure to carry over while

more effective psychotherapy is being pursued.

The physician's increasing and full knowledge of his patient will inevitably sum up in his own mind as the need for re-education. He will see how the personality is poorly balanced; how too much conscientiousness cripples performance; how excessive guilt feelings lead to insecurity and inadequacy, how foreboding anticipation cripples adventuresomeness, how habits of shyness, inarticulateness, distrust, exclusive self-preoccupation and lack of concern for others handicap social relations and friendships, how life-long attitudes of submission or aggression, temper or withdrawal interfere with the fullest realization of the patient's potentialities. These call for actual re-education; education in principles of normal health and behavior. Strength and courage and new direction will come to the patient mainly in proportion to what he can express and share with the physician. Haunting memories lose their stigma; fears and anxieties are relieved through desensitizing. The long haunting worry about masturbation disappears when it is understood as a developmental phase in every normal person's life. Similarly other anxieties lose their charge through discussion.

In performing this therapeutic function, the physician may be little able to verbalize, formulate or follow the steps in the process. It matters little whether he knows he is using techniques of explanation, reassurance, persuasion, suggestion, or re-education as long as he serves the function. Few psychiatrists and fewer patients can give logical verbalization to what has happened during the relationship and therapy. The pragmatic test of relief is what really matters.

War has heightened our appreciation of the amount of help and understanding that can be obtained from allied disciplines. The practitioner should inform himself of the excellent contributions made by the psychologist and the social worker since both are usually available in his community and they are ready to add their skills to his study. In the field of psychology extensive tests have been devised and proven to be of value in evaluating the kind and degree and severity of neurotic disability. Such tests as the Cornell Neurotic Index, the Rorschach Test, the Murray-Thematic Apperception Test for the determination of personality profiles, etc. A great variety of intelligence and aptitude tests are available for the better placement of individuals at work or in school.

The social worker is pre-eminently trained in the understanding of

individual, family and community problems and resources. The social worker's history will take the physician far in the understanding of the essential personality with which he is dealing. In turn she is ready for help in advising and finding of community resources for recreation, exercise, companionship, housing, special training, and job finding. These major contributions have long been left out of the curriculum of training of doctors. Slowly and fumblingly the average doctor stumbles across their usefulness. He would do well to obligate himself to know the full range of social work possibilities and coöperation.

Skill in therapy comes from experience. Experience involves continued study. A helpful literature for practitioners is beginning to accrue. To be recommended are such presentations as: Binger's "The Doctor's Job,"[1] Dunbar's "Emotions and Bodily Change,"[2] Levine's "Psychotherapy in Medical Practice,"[3] Weiss and English "Psychosomatic Medicine,"[4] Menninger's "The Human Mind,"[5] Preston's "Psychiatry for the Curious,"[6] the publication "Psychosomatic Medicine." Other brief treatises of value are Whitehorn's "Guide to Interviewing and Clinical Personality, Study,"[7] R. Dicks' "The Ministry of Listening,"[8] Hamman's "Relationship of Psychiatry to Internal Medicine."[9]

From this simplified discussion, one would hope that the practitioner is convinced by now that all his patients will be improved by appropriate attention to their emotional life. Nothing that one can say so briefly will make the practitioner a psychotherapist. It may stimulate his desire to know more about the technique. If the doctor has achieved an attitude of tolerance towards these disabled people he will already have gained much. If he is determined to look for the emotional responses, even though they are not always evident or immediate, he is on the right track. This appeal is made that practitioners and psychiatrists work together for better medical care of human beings. It is an appeal that we go forward together in an educational venture wherein both of us can profit. Let us at least begin the process of study and acquisition of knowledge since only through the increasing skill of the practitioner can there be any hope for relief for those patients who constitute the bulk of all medical liabilities.

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EVALUATION OF EARLY POSTOPERATIVE ACTIVITY*

JOHN H. POWERS

Acting Surgeon-in-Chief, The Mary Imogene Bassett Hospital, Cooperstown, N. Y.

SCIENTIFIC inquiry into the physiology of inactivity and the application of this knowledge to the problems of convalescence and rehabilitation are two of the prominent contributions of the war effort to medicine and surgery. The physiologic effects, biochemical alterations, and psychologic changes in the human economy which occur with prolonged periods of rest in bed have been ably discussed by Dr. Barr. My remarks will be limited to the practical evaluation of early activity after major surgical operations.

Such a regimen is not new. Early postoperative mobilization was first instituted by Emil Ries[1] who observed in 1899 "that after intra-abdominal work done by the vaginal route patients could be fed like perfectly healthy persons and could be allowed to be up and walking about in a remarkably short time . . . that the period for which it was advisable to confine such cases to bed could be counted by hours instead of days". Encouraged by his success with this regimen after vaginal celiotomy the same routine was shortly utilized in the management of patients following abdominal laparotomy. Early postoperative walking was also adopted by Boldt,[2] a former gynecologist of this city, and by 1906 these two authors had a combined series of nearly 900 patients who had been allowed up and about on the first or second day after laparotomy with "not a single instance of untoward result which could in any way be attributed to the early rising from bed."

An accelerated postoperative regimen was likewise advocated in many continental clinics[3] but was accepted less readily in England and America. Recently, however, due in part to the exigencies of military surgery and the urgent demands upon civilian hospitals, attention has once again been focussed upon the importance of early rehabilitation,

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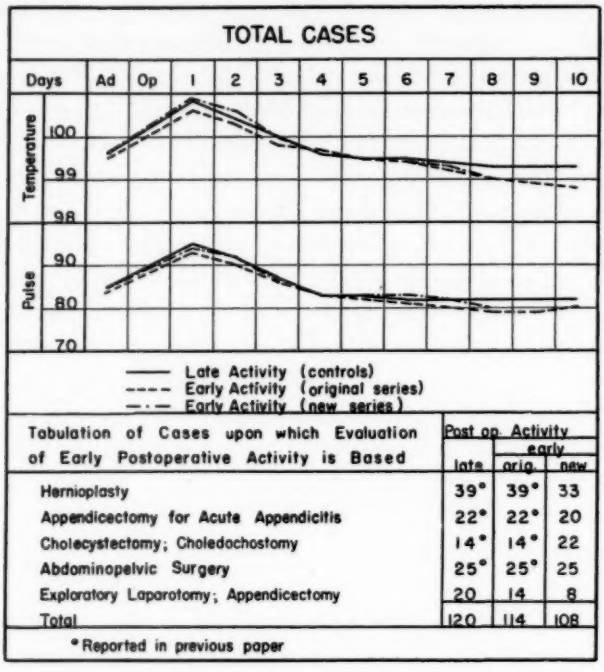
and modern surgeons who have had experience with this method of postoperative management comment favorably on their results.[4-11] Extensive bibliographies have been published by Smith,[11] Newburger,[3] and Leithauser.[9] The English and foreign literatures now embrace references to well over 10,000 patients who have been out of bed and walking on the first day after surgical operations of major magnitude and to many times this number who have become ambulatory on the second, third, fourth, and fifth days. Unfortunately, these papers often present no precise definition of "early activity" and with few exceptions the conclusions of the authors have been drawn from clinical impressions rather than comparative, statistical data. Hence, in order properly to evaluate early postoperative activity, it is imperative first to define the term, secondly to decide on certain measurable data upon which such an evaluation may be based, and thirdly, with these data in mind to compare the results of "early activity" with those of "late activity" among groups of patients sufficiently large to be of statistical significance.

Definition. In this report "early activity" connotes arising from bed, standing, walking, and sitting in a chair on the *first* day after operation.

Basis for Evaluation. The data upon which this evaluation is based include measurements of vital functions (temperature, pulse rate, blood pressure, vital capacity) indicative of the well being of the patient, reveal deviations from his usual dietary and gastrointestinal habits, disclose degrees of comfort or discomfort due to pain as measured by the administration of morphine, embrace a detailed analysis of the postoperative complications, and finally indicate clearly when normal activity is resumed.

Presentation of Data and Comparison of Results. Series of observations on three groups of unselected patients which form the basis of this evaluation of early postoperative activity are herewith presented (Figure 1).

One hundred patients used as controls in the column designated "late postoperative activity" and 100 in the group termed "original early activity" who were ambulatory on the first postoperative day were discussed at the Symposium on the Abuse of Rest in Chicago at the Ninety-Fourth Annual Session of the American Medical Association in 1944.[7] These two groups each embrace thirty-nine hernioplasties, twenty-two appendicectomies for acute appendicitis, fourteen operations on the biliary tract, and twenty-five cases of abdominopelvic surgery (Figure



Tabulation of Cases upon which Evaluation of Early Postoperative Activity is Based	Post op. Activity		
	late	early orig.	early new
Herniaplasty	39*	39*	33
Appendicectomy for Acute Appendicitis	22*	22*	20
Cholecystectomy; Choledochostomy	14*	14*	22
Abdominopelvic Surgery	25*	25*	25
Exploratory Laparotomy; Appendicectomy	20	14	8
Total	120	114	108

*Reported in previous paper

Figure. 1. In the lower half of the chart are tabulated the cases upon which this evaluation of early postoperative activity is based. In the upper half are presented graphic records of the highest average daily temperature and pulse rate of all the patients in each group.

1). Patients subjected to these four well standardized operative procedures were originally chosen for comparative study because the total periods of hospitalization and convalescence after each were fairly well established by tradition. In the present study these groups have been respectively augmented by twenty and fourteen patients subjected to laparotomy and appendicectomy for abdominal pain, and an entirely new series has been added. This embraces 108 patients upon whom the same operative procedures were performed, who were out of bed and walking on the first postoperative day, and whose convalescences thereafter were accelerated even more rapidly than those of the patients who comprised the original series. These cases are tabulated in the column designated "new early postoperative activity."

The average ages of the patients in the three groups were quite

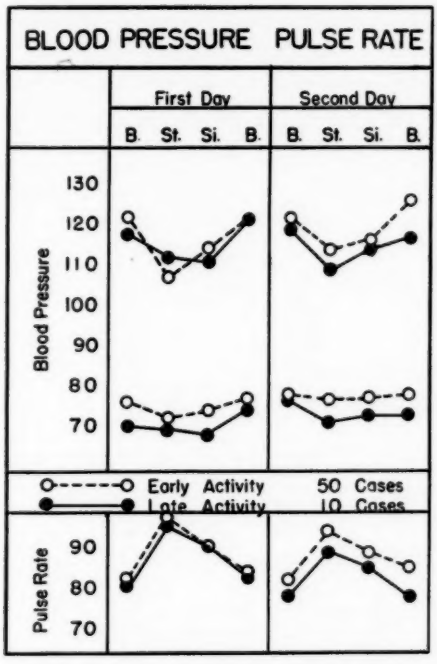


Figure 2. Curves indicating average changes in blood pressure and pulse rate coincidental with standing and sitting in a chair on the first and second days of activity among 50 patients who were ambulatory on the first postoperative day compared with similar observations on 10 patients who remained recumbent for 1-3 weeks after operation.

comparable (Figure 5). Those in the control series ("late postoperative activity") remained in bed an average of 12.3 days while the patients in each of the other two groups were up and walking on the first postoperative day. Those who comprised the foremost group remained in the Hospital for an average period of 15.4 days each; those in the original series of early activity for an average of 10.1 days, while the patients in the new series were hospitalized for 8.4 days only. Occasional individuals in this group who lived within a radius of 12-15 miles from the Hospital were allowed to go home on the second, third, or fourth postoperative day to return to the out-patient department for removal of sutures. No ill effects were observed when this freedom of activity was permitted.

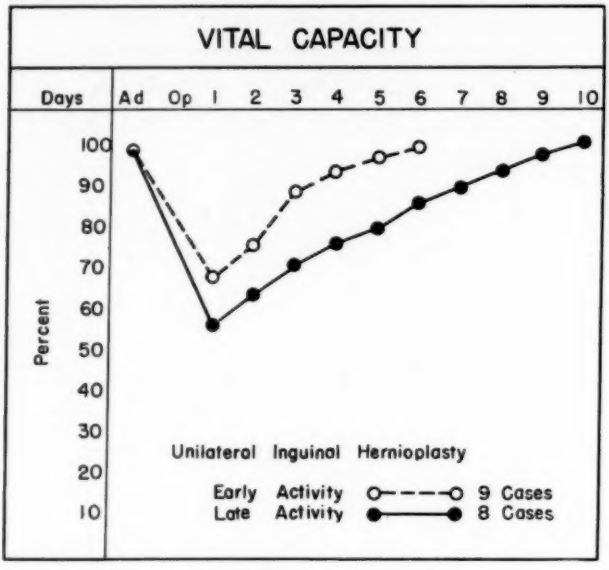


Figure 3. Composite curves representing the vital capacity of 9 patients who were ambulatory on the first day after unilateral inguinal hernioplasty and 8 patients who remained in bed for 12 days.

Temperature and Pulse Rate. Presented in Figure 1 are curves representing the composite temperature and pulse rate before operation and during the early convalescence of the patients in all three groups. These were plotted by averaging the highest levels recorded for every patient in each group on each day, and thus represent maximal elevations during the convalescent period. It is apparent from these curves that early postoperative activity does not affect adversely these indices of vital functions.

Blood Pressure. In order to evaluate changes in blood pressure and pulse rate coincidental with early and late activity, two exactly comparable series of observations were made on fifty patients who were up on the first day and on ten who remained flat in bed for 7-21 days after operations of similar type. These observations were taken on both the first and second days of activity and comprised determinations of the blood pressure and pulse rate with the patient in bed, again immediately after standing erect on the floor, thirdly after sitting in a chair

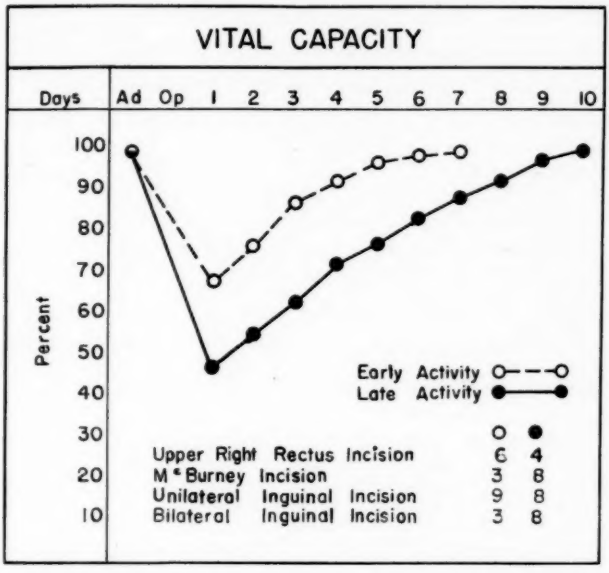


Figure 4. Similar curves for 21 patients who were up and walking on the first postoperative day after various procedures compared with 28 who remained in bed for the traditional convalescent periods following operations of similar type.

for 10 minutes, and finally after return to bed. The results are plotted graphically in Figure 2. They indicate no greater drop in blood pressure or rise in pulse rate coincidental with the first two occasions of arising from bed after operation, when these be on the first and second postoperative days instead of after the lapse of 1-3 weeks in bed.

Immediately after standing minor changes occurred among the patients in each group, were still present though less marked after 10 minutes in a chair, and disappeared promptly upon return to bed.

Weakness, vertigo, mild syncope, nausea and sometimes vomiting occurred singly or in combination among 40 per cent of the patients who stood on the first postoperative day; similar reactions to the erect position were present among 75 per cent of the patients in the control group who did not stand until 1-3 weeks after operation.

Vital Capacity. Postoperative changes in vital capacity secondary to upper right rectus, McBurney, unilateral, and bilateral inguinal incisions have previously been reported for patients who remained in bed the traditional periods of time after operation.[12] Herewith recorded are

ADDITIONAL DATA	*Post. op. Activity*		
		Early	
	Late	*Orig.*	*New*
Number of Patients	120	114	108
Average Age	35.8	41.0	37.8
Days in Bed after Operation	12.3	1.0	1.0
Days in Hospital	15.4	10.1	8.4
Weeks of Convalescence	10.0	5.8	4.5
Days before Resumption of Normal Diet	8.7	5.2	3.3
Average Loss of Weight per Patient	3.8	3.0	4.5
Morphine: Average Amount per Patient	0.062	0.029	0.027
Number of Doses per Patient	5.6	2.6	2.6
Incidence of Postoperative Distention	50.5%	26.2%	22.0%
Incidence of Gas Pains	69.4%	37.9%	28.9%
Patients requiring Poultice and Rectal Tube	61.3%	41.2%	32.7%
Average Number per Patient	2.5	1.1	0.6
Patients requiring Enema	90.0%	63.4%	53.4%
Average Number per Patient	2.5	0.9	0.7

Figure 5. Tabulation of additional data of significance in the evaluation of early postoperative activity.

similar determinations on nine patients who were ambulatory on the first postoperative day after unilateral inguinal hernioplasty (Figure 3) and on twenty-one patients who were up and walking on the first day after this and other operative procedures (Figure 4). For comparison as controls are plotted curves from the previously published observations. All determinations were made with the patients supine and represent the highest of 3-5 readings. For the sake of uniformity the preoperative levels in each case have been considered as 100 per cent and the subsequent changes are plotted on a percentage basis.

From these charts it is obvious that the drop in vital capacity which follows immediately in the wake of major surgical operations is less precipitous and pronounced and the return to normal more prompt among patients who are ambulatory on the first postoperative day than among those who remain recumbent and inactive for 10-14 days.

Diet. Subsequent to the publication of the second paper on early postoperative activity a letter was received from Captain William A. Barrett,[13] 100th Evacuation Hospital, Belgium, which, in part, read as follows: "For over two years I have allowed ambulation on the first day following all elective operations with the same beneficial effects you observed. . . . All these patients likewise had a regular diet postoperatively

except for the first meal which was toast and tea or bouillon. Invariably they tolerated a regular diet at the succeeding meal. When this procedure is followed there are no 'gas pains' and a negligible loss of weight." Captain Barrett's experience was confirmed in this clinic. Many ambulatory patients expressed a desire to "have more to eat" on the second, third, and fourth postoperative days. Consequently, the dietary routine for those in the new series without complications was accelerated to permit hot clear fluids on the first postoperative day, soft diet on the second, and regular diet on the third. The incidence of postoperative distention and "gas pains" was appreciably lowered as indicated in the next paragraph but the average loss of weight per patient in this group was slightly greater than in either of the others. If this weight loss be significant, the reason is not apparent.

Gastrointestinal Function. Due in part to early postoperative activity and doubtless also to more and more prompt resumption of a normal diet the occurrence of postoperative distention decreased from 50.5 per cent among the recumbent patients in the control group to 26.2 per cent among those in the original group of early activity and 22.0 per cent among the patients in the new series (Figure 5). The incidence of "gas pains" likewise fell from 69.4 through 37.9 to 28.9 per cent among the patients who were ambulatory on the first day and were permitted a regular diet on the third postoperative day.

The number of individuals who required abdominal poultices and rectal tube for the treatment of distention and those who demanded one or more enemas for evacuation of the large bowel after operation decreased very appreciably (Figure 5). The actual number of enemas administered fell from an average of 2½ to each patient of the control group to 1 per patient in the original series and to 1 for every other patient in the new group.

Pain. If the amount of morphine required for the control of pain be accepted as an index of the amount of discomfort suffered by the patient, it is at once apparent that those who were ambulatory on the first postoperative day were more comfortable than were those who remained recumbent for 12 days. The patients in the two active groups required less than half as much morphine and fewer than half as many doses as did those in the control group (Figure 5). Seldom was any hypodermic necessary after the first few hours following recovery from anesthesia.

POSTOPERATIVE COMPLICATIONS

	Complication	P. O. Activity		
		Late	Early	
		Controls	Orig.	New
Local	Disruption of wound	0	0	0
	Subsequent Herniation	3	1	0
	Recurrence of Hernia	2	0	1
	Infection of Wound	0	1	2
	Hematoma in Wound	1	2	0
	Silk or Cotton Sinus	1	0	1
	Residual Intraperitoneal Abscess	2	0	0
Pulmonary	Massive Atelectasis	1	0	0
	Partial Atelectasis	0	1	2
	Bronchopneumonia	3	1	2
	Infarct of Lung, embolic	1	0	2
	Suspected Infarct of Lung	1	0	1
	Serious Pleurisy	0	0	1
	Bronchitis	1	2	1
	Nasopharyngitis	2	0	0
Cardiac	Coronary Thrombosis	1	0	0
	Angina Pectoris	1	0	0
	Paroxysmal Auricular Fibrillation	1	0	0
Vascular	Iliofemoral Thrombophlebitis	1	1	1
	Thrombosis of Deep Veins of Legs	1	0	1
	Suspected Thrombosis	3	1	5
Genito-urinary	Inhibition of Bladder			
	Requiring one catheterization	8	7	9
	Requiring several catheterizations	19	3	9
	Cystitis due to E. Coli	1	0	0
	Uremia	0	0	1
Gastro-intestinal	Dilatation of Stomach	3	0	0
	Fecal Impaction	3	0	1
General	Unexplained Fever	6	0	0
	Total	66	20	40
	Average	0.55	0.17	0.36
	Incidence	55%	27%	

Figure 6. Tabulation of postoperative complications incidental to early and late activity.

Individuals who had previous operations were uniformly enthusiastic about early activity. Without exception, each one stated that arising from bed and walking were accompanied by less pain and discomfort on the first postoperative day than after 10-15 days of recumbency. Furthermore, the subsequent convalescence was likewise much more comfortable throughout.

Postoperative Complications. All patients have been observed carefully and examined frequently for evidence of complications during the convalescent period. These have been classified according to the system involved and tabulated in Figure 6.

If early postoperative activity is to be correctly evaluated it is imperative that meticulous attention be paid to symptoms and signs which suggest some complication even though its actual existence may be only suspected.

No wounds disrupted. Subsequent herniation in abdominal incisions and recurrence of hernia after repair were both more common among the patients who remained in bed. The 3 infected wounds were not related to early activity; 2 were operative mishaps and 1 was due to contamination by a gangrenous appendix.

The speaker has never believed that pulmonary and vascular complications were so thoroughly eradicated as has been quoted by previous writers; "1,569 cases, 3,197 cases without complications; 6,000 patients out of bed on the first postoperative day with not a single case of embolism."[9] This opinion is substantiated by the incidence of such complications among the ambulatory patients of the most recent group submitted to analysis (Figure 6). The etiology and pathologic physiology of postoperative pulmonary and circulatory complications have been discussed elsewhere[7] and will not here be repeated. However, the speaker wishes to emphasize the opinion that elevation of the foot of the bed 8-10 inches, hourly exercises of the lower extremities, and early postoperative walking may circumvent the formation and liberation of thrombi of sufficient size to precipitate a fatal postoperative catastrophe.

Genito-urinary complications, particularly the necessity for repeated catheterizations, gastrointestinal difficulties, and fever of undetermined origin were more common among the patients who remained in bed for 12 days after operation.

The total number of complications was likewise much higher among these patients of the control series than among those in either of the active groups and the incidence of complications was double their collective incidence among both groups of patients who were out of bed and walking on the first postoperative day (Figure 6).

Weeks of Convalescence. The convalescent period is considered as beginning with the first postoperative day and continuing until the patient resumed full activity at the employment which was interrupted

SUTURES	*Post. op. Activity*		
		Early	
	Late	*Orig.*	*New*
Silk	87	99	24
Cotton	0	0	77
Catgut	10	7	4
Silk and Silver Wire	1	0	0
Cotton and Silver Wire	0	0	1
Catgut and Silver Wire	1	5	0
Silk and Silkworm Gut	3	0	1
Cotton and Silkworm Gut	0	0	1
Catgut and Silkworm Gut	1	1	0
Silk and Fascia	0	1	0
Not Stated	17	0	1
Total	120	114	108

Figure 7. Tabulation of materials used for sutures.

by admission to the Hospital for surgical treatment. Among the patients herein discussed the period of convalescence was reduced from 10 weeks to 5.8 weeks in the original series and to 4.5 weeks in the new series by early postoperative activity and walking (Figure 5). This represents a cut of 55 per cent in time formerly devoted to convalescence and suggests that the period of inertia which traditionally follows in the wake of surgery may be largely eliminated.

Further Comment

Sutures. Many authors who have had experience with early postoperative activity have emphasized the superiority of one type of material for sutures over all others.[4, 5, 8, 10, 11] In Figure 7 are tabulated the various materials which were utilized in the cases herein discussed. Silk and cotton were used most frequently, catgut alone and in combination with non-absorbable supporting sutures was employed less often. No disruptions occurred. With the exception of three infections (an incidence of 0.8 per cent), one transient silk and one cotton sinus, all wounds healed by first intention.

Scrupulous care in the prevention of infection, meticulous hemostasis, gentle manipulation and accurate reapproximation of tissues layer by layer with fine interrupted sutures are doubtless much more im-

ANESTHESIA	*Post. op. Activity*		
		Early	
	Late	*Orig.*	*New*
Local Novocaine	7	16	4
Novocaine, Nitrous Oxide, Oxygen	5	0	0
Spinal	16	11	15
Continuous Spinal	0	2	0
Spinal and Local Novocaine	0	1	1
Spinal, Nitrous Oxide, Oxygen	5	6	2
Spinal, Nitrous Oxide, Oxygen, Ether	1	0	3
Nitrous Oxide, Oxygen, Ether	43	17	19
Avertin, Nitrous Oxide, Oxygen	6	19	24
Avertin, Nitrous Oxide, Oxygen, Ether	37	41	40
Avertin and Ether	0	1	0
Total	120	114	108

Figure 8. Tabulation of anesthetic agents employed.

portant than the type of material used.

Healing. During the early days of modern surgery absolute rest and protection were considered so essential for the proper healing of wounds that immobilization for 3-4 weeks in a plaster spica was often employed after repair of an inguinal hernia. With the realization that tissues which are continuously and repeatedly in motion heal kindly, that the wounds of infants and children who cannot be kept quietly in bed after operation likewise heal firmly in spite of activity, opinions have gradually changed and immobilization is no longer consdered essential for the proper healng of coapted tissues. In fact, Newburger[14] and Kimbarovskiy (quoted by Leithauser[9]) believe that healing is accelerated by activity.

In the cases herein reported incisional herniae and recurrent herniae were less common among the ambulatory patients than among those who remained at rest in bed for the traditional postoperative period of recumbency.

Anesthesia. Early postoperative activity and walking are neither limited or contraindicated by the type of anesthesia employed. The various agents utilized in the three groups of cases are tabulated in Figure 8.

Additional Cases. The cases included in the above study represent

consecutive unselected patients who were submitted to the five operative procedures enumerated in Figure 1. These were chosen because the period of rest in bed, the days of confinement to the Hospital, and the total duration of the convalescence after each were well established by tradition. Any deviation therefrom attributed to early postoperative activity could be readily evaluated. Less easily evaluated because less amenable to comparative analysis and hence not included in this presentation are many patients who have also been ambulatory on the first day after many other types of operative procedures of major magnitude. These include operations on the esophagus, resections, closure of perforations, and other operations on the gastrointestinal tract and colon, nephrectomy and other procedures on the kidney and ureter, prostatectomy by the suprapubic and transurethral routes, subtotal thyroidectomy, and radical mastectomy. In fact, with very few exceptions all patients are now ambulatory on the first postoperative day.

Contraindications. There are very few absolute contraindications. Generalized bacterial peritonitis, debility and weakness of such degree that the patient is unable to stand even with assistance, serious bleeding at the operating table or shortly thereafter, thyroid crisis, immediate or early postoperative coronary thrombosis, and non-fatal pulmonary embolism are definite contraindications to early ambulatory activity.

Fever, pulmonary complications other than infarction due to embolus, chemical peritonitis, intraperitoneal abscess, abdominal distention, draining wounds and sinuses, and tubes in hollow viscera so placed either by operation or through natural channels are not contraindications.

Thrombosis in the deep veins of the legs should be treated by prompt interruption of the venous channel proximal to the clot after which the presence of the thrombus should not be considered as a contraindication to postoperative activity.

Conclusion

Early postoperative activity, walking, and other accelerated modifications in customary convalescent care provide safe innovations in postoperative management by which the process of deconditioning may be largely eliminated and early rehabilitation achieved. The data submitted above in evaluation of this program support these conclusions.

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